one hand and health promotion on the other. It is crucial to remember, however, that health promotion can make a tremendous difference. I would like to spend my last few minutes, therefore, talking about health promotion.

The health promotion sciences are not tremendously well-developed, but we do know that prior to behavior change, there must be changes in knowledge, in attitudes, and in beliefs. For changes in knowledge and in attitudes to occur, we need messages that are credible, that are reinforced from a variety of perspectives, and that are sustained over time. In other words, we need to know the facts, we need to build coalitions, and we need to stay with it.

Credibility of a campaign comes from improving data sources, from deepening the analysis of those data, and from involving leadership, such as your involvement with the Surgeon General in this public health effort on improving agricultural safety and health.

I would like to give special emphasis to the issue of data sources, because they are so vital to insuring that the messages that we give are credible. We heard from Mr. Atchison earlier of the discrepancies that exist in our current data sources.

When we know that some estimates describe 14 deaths per 100,000 agricultural workers, whereas others indicate that there may be as many as 50 deaths per 100,000 agricultural workers, it is evident that we need to have better data on which to shape our policies and programs. Improving data systems, especially for agricultural workers, needs to be a priority for the future.

We also clearly need to recruit allies to help us disseminate the information. We need to involve schools, employers, retailers, and the media. We need to involve farm equipment manufacturers and community leaders. The establishment of solid, locally based coalitions is critical to gains in agricultural safety and health, just as they have been critical to the gains that we have seen in other areas of public health in recent decades.

Even knowledge, attitudes, and changes therein, while necessary, may not be sufficient to accomplish the kinds of gains that we would like to see. People also need to believe that these issues are directly and personally relevant to themselves.

The message needs to be brought home. Whether it is brought home to families through children in school settings or whether it is brought home to people through interactions with health providers taking a more careful history of individual risk, it is clear that we need to find ways to make these risks more relevant to the individuals who are at greatest risk.

It is no accident that the biggest gains in public health recently have been made in areas where individual risks have been defined in the form of a number (e.g., cholesterol level or a blood pressure reading). It should be entirely possible to develop a health hazard appraisal instrument that can be used to better characterize the risk of individual farm settings, and we need to work on new ideas.

In summary, know the facts, build coalitions, stay with it, and bring it home. It is a tested formula. It has worked, and it can work in agricultural safety and health.

Healthy People 2000 is a statement of national goals and objectives for the year 2000, and I am delighted, Mr. Atchison, that you have taken this on in a very substantial way here in Iowa. Richard Remington is going to provide tremendous leadership, and we will profit throughout the nation in the kind of model that you will be developing here in Iowa.

Healthy People 2000 envisions the year 2000 with nearly a third fewer farm injuries and deaths than currently occur, but it also envisions as a means to achieving these goals, greater commitment on the part of our health providers, schools, manufacturers, and states to the problem of agricultural safety and health. It envisions greater national attention to the issue. It envisions a situation in which we can provide an example to the world for improvements in agricultural safety and health, just as we have provided an example to the global community in improvements against cardiovascular disease. I believe that it is a vision that can be attained in this Surgeon General's Conference on Agricultural Safety and Health as an important step to forming the coalition that can make it happen.□

Surgeon General's Conference on Agricultural Safety and Health
FARMSAFE 2000 • A National Coalition for Local Action
Convened by the National Institute for Occupational Safety and Health
April 30 - May 3, 1991, Des Moines, Iowa

ENCOURAGING ACTION IN PREVENTING INJURY AND DISEASE IN AGRICULTURE
— A Video Message —

By Louis W. Sullivan, M.D.
Secretary of Health and Human Services

Dr. Antonia C. Novello: Dr. Louis Sullivan, our Secretary of Health, was going to come to this meeting, but because of scheduling - you would not believe how many places we have to go when we are in jobs like this, and he has to be in many more than anyone can ever dream of - he could not make it; but, he sent a video message for you all, and I would like to show that for you:

Hello, I am Dr. Louis Sullivan, Secretary of Health and Human Services. Thank you for inviting me to participate in your conference—I regret that my schedule did not allow me to attend.

It is fitting to hold this conference in Des Moines. For many years, Iowa has been at the forefront of efforts to improve agricultural safety.

This state has produced many national leaders in rural health. In fact, Former Iowa Governor Robert Ray is currently an advisor to me as chair of the National Advisory Committee on Rural Health.

The seriousness of agricultural injury and disease demands national attention.

The advances in technology during the past few decades have given today's agricultural workers a tremendous advantage unimagined by the workers of yesteryear. But those advances have come at a price: the technology that increases productivity tenfold can also be a powerful, tragic threat to health and well-being.

The seriousness of agricultural injury and disease demands national attention. Successful improvements, however, will be rooted solidly in local initiatives. Your theme—"A National Coalition for Local Action"—establishes the ideal framework for addressing the problems of agricultural occupational hazards.

Agricultural workers have one of the highest rates of occupational fatality in the country. Although they represent only two percent of the nation's work force, they rank fourth highest in the number of work-related traumatic fatalities.

The risks of agricultural work do not fall equally across all types of work, nor among the workers themselves. For example, loggers have an especially high risk of death with more than 200 deaths per 100,000 workers, a rate nearly 30 times the general private- sector fatality rate.

There is also a clear disparity among population groups. Hispanic and black agricultural workers face an occupational fatality rating 20 to 30 percent higher than white populations. Other minorities are more than twice as likely to die while working at an agricultural job than in another profession.

The key to making those strategies effective—the critical, vital factor that will determine our success in lowering the risks of agricultural work—is local initiatives and efforts.

However, the very definition of *occupational hazards* means that it is possible to reduce many of the risks involved. Our first and strongest attack on occupational hazards should be prevention. Improved working conditions, use of safety devices, and more extensive educational efforts will lower job-related fatalities.

It is estimated that tractors are involved in more than three-quarters of agriculture-related deaths, most of which occur as a result of tractor rollovers. Roll bars and other preventive structures can be very effective in limiting death and injury to tractor operators, but often such safety measures are not used.

To encourage farmers to use preventive structures, the Marshfield Center, an Health and Human Services (HHS)-funded rural health research center in Marshfield, Wisconsin, has published a guide to give farmers information on where to find roll bars and how to use them to minimize the risks of injury in rollovers.

Efforts to reduce job-related exposure to chemicals should also be more effective. It is estimated that 20,000 people suffer pesticide poisoning each year. Often other economical alternatives—such as crop rotation and biological pest control—can significantly reduce the risks of exposure.

The key to making those strategies effective—the critical, vital factor that will determine our success in lowering the risks of agricultural work—is local initiatives and efforts.

This conference is already a milestone in developing efforts to save lives and preserve health. By thinking nationally and acting locally, we can make agricultural work in America safer and healthier for everyone.□

Surgeon General's Conference on Agricultural Safety and Health
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SURGEON GENERAL CONFERENCES: A MODEL FOR THE FUTURE

By Antonia C. Novello, M.D.
Surgeon General of the United States Public Health Service

Thank you. As they said in the movie "Field of Dreams," "We have built it, and they have come." I would like to thank Dr. Millar, Mel Myers, and the rest of NIOSH, as well as the people of Iowa for helping organize this event. I am honored to be the first Surgeon General to hold a Conference on Occupational Health in 50 years.

I imagine the last Conference was probably set up much differently than this one. I am sure it was much more of a "low key" affair, without all the new communications technology that has come along in the last several years. Of course, the last Surgeon General's Conference was not even videotaped, so it is possible that back then the Public Health Corps' Commissioned Officers could probably get away with not wearing their uniforms, since no one would find out!

At any rate, it is about time we had another one of these Conferences. And it is my hope that we do not have to wait another 50 years to have the next one, because I am not real sure what my schedule will look like at that time.

The last Conference was held in the year 1941, the same year the United States entered World War II. Fifty years later, we finally have the opportunity to hold another Conference—just after we have ended the Persian Gulf War. However, in between those two wars, *another* war has raged continuously for those of us in the Public Health Service. The war against disease and injury.

WHY THIS CONFERENCE IS IMPORTANT TO ME

Ever since I became Surgeon General, it has been written and said many times that I will have a lot of difficulty trying to be like Dr. Koop. That is OK, because I would never be able to grow a beard like him. It is also OK, because it is my desire to set my *own* agenda as Surgeon General.

Although Dr. Koop was very successful in redefining the role of Surgeon General by bringing a lot of visibility to public health priorities—priorities, which I will continue to pursue—it is my prerogative to establish new priorities as well. Today's Conference on Agricultural Safety and Health marks a perfect occasion for me to do that.

In addition to being frequently compared with Dr. Koop, a lot has been made of the fact that I am the first woman and Hispanic to hold this position. I can not lie to you—I am both! However, as a woman and

a Hispanic, there are aspects about this conference, which are very important to me.

As a woman—as well as a pediatrician—it greatly concerns me that women and children are so often the victims of farm injuries and fatalities. These injuries and fatalities occur because farming is frequently a family occupation, where everyone participates.

As a woman, I totally agree with the philosophy of Marilyn Adams' group Farm Safety for "Just Kids," who say that the one person on a farm who can play the most pivotal role in educating farmers and farm children about the dangers of working on a farm is the woman. She can most easily influence her husband and her children—either in a nice way, or if necessary, in a not so nice way! In tomorrow's "Charge to the Conference," I will more strongly express my concerns about the dangers to farm children.

These are my concerns as a woman. As a Hispanic, I am well aware of the safety and health problems of the migrant worker, many of whom are also Hispanic:

- Out of the 50 States in this country, 48 of them rely heavily on migrant workers for help during he peak harvest seasons.

- These workers have very poor access to health care facilities and infant mortality is very high, estimated to be 50 per 1000.

- Due to water shortages on many of these desert—area farms, these workers are often forced to drink irrigation water, which may be contaminated with farm chemicals or infectious agents.

- Crop dusting planes often swoop down from the sky and spray toxic pesticides onto fields where many of these migrant workers are forced to sleep. Many chemicals are known to cause problems such as sterility and miscarriage.

- Finally, injuries and illnesses to these workers are grossly under—reported to safety and health officials, primarily due to:

1. Language barriers.

2. Fear of job—loss.

3. An overall lack of worker education.

As a woman, I totally agree with the philosophy of Marilyn Adams' group Farm Safety for "Just Kids," who say that the one person on a farm who can play the most pivotal role in educating farmers and farm children about the dangers of working on a farm is the woman.

We must take more initiative in educating these workers. It is a situation we are continuing to learn more about all the time, as shown by Dr. Sullivan's comments we just heard about Black farm workers and their high risk of tuberculosis.

Therefore, safety and health among migrant workers, women, and children are all issues that I care about, not only as your Surgeon General, but as a woman and Hispanic. This is why this Conference is so important.

BACKGROUND ON THE SURGEON GENERAL'S CONFERENCE ON OCCUPATIONAL HEALTH

I will now provide a little history on the Surgeon General's Conference on Occupational Health. This is the 10th Conference in U.S. history. The first conference was held on May 20, 1925 by the Surgeon General of that period, Dr. Hugh S. Cumming, who called a Conference to discuss the problem of tetraethyl lead—a deadly occupational poison. Attending that first Conference were industrialists, chemists, labor representatives, and physicians.

Surgeon General Cumming held another Conference in 1926, in which the first cooperative agreement on toxic substances was reached. A third Conference, on the health hazards of radium dial painting, was held in 1928, and six more were held over the course of the next 13 years (Other Conferences dealt with: methanol; carbon tetrachloride and similar volatile chlorinated liquid hydrocarbons; carbon tetrachloride fire extinguishers; aniline oil; carbon disulfide; benzol; occupational cancer; and chronic mercurial poisoning in the hatting industry—better known as the "mad hatter" syndrome).

CHARACTERISTICS OF THIS CONFERENCE

Dr. Alice Hamilton, the famous industrial hygiene pioneer and the first U.S. physician to devote her career to occupational safety and health, was so encouraged by these Conferences that she wrote:

> *it was to me both surprising and heartening to see men of such widely separated backgrounds and interests... meet in a spirit of reasonableness and genuine desire to get at the real facts and deal practically with the problem.*

That is true today, as well. I look around the room and see people from many points on the spectrum of society, and this is why the theme of the Conference is called "A National Coalition for Local Action."

Safety and health issues in agriculture must be handled differently than safety and health issues in other occupational fields. Although people involved in the production of food and fiber are the largest single occupational group in the U.S., they are also a very isolated group. Not only because they live in rural areas far away from the noise and chaos of the urban environment, but also because they are isolated when it comes to protecting themselves.

There is no *internal* voice among the farm community to represent them, and there is no *external* voice to represent them either. This is something the farm community has in common with the children of the United States; children have no voice among

themselves to represent them, and no external group to speak for them either.

Children, like farmers, are isolated. This is why I chose to be a pediatrician.

So, it is important that we address the problems of the farming community beginning at the local level, although this is a national problem. This is certainly a unique approach to solving a public health problem, and I am hopeful this is only the beginning.

Actually, there is a precedent for this Conference. In September 1988, a Conference was held by a group, which ultimately became NCASH—the National Coalition for Agricultural Safety and Health. That Conference focused on four main objectives:

- Summarizing research and health and safety programs.
- Integrating the viewpoints of farmers and farm workers, the private sector, and public institutions.
- Identifying service needs and policy issues for the family farm.
- Communicating the results to legislators, policy makers, federal/State agencies, farm groups, farm families, and the general public.

That 1988 Conference is how the "National Coalition for Local Action" began. Without their hard work, it is unlikely we could have ever pulled this event off.

Three people in particular deserve special recognition for their involvement with NCASH: Mr. Carrol Bolen, with Pioneer H-Bred and the Executive Director of the Iowa 4-H Foundation, Ms. Lu Jean Cole, the Director for Community Investment for Pioneer H-Bred, and Mr. Tom Urban, Chairman and President of Pioneer Hi-Bred International, Inc. Could Mr. Bolen, Ms. Cole, and Mr. Urban please stand and be recognized?

CONCLUDING REMARKS

In Puerto Rico where I grew up, farming was the dominant way of life for many generations—as it was here in America. Puerto Rico is much different now. A program known as "Operation Bootstrap" restructured and revitalized the Puerto Rican economy, transforming it from an agricultural economy to a manufacturing economy.

Although farming is no longer the major way of life in Puerto Rico, there are still parts of Puerto Rico where farming still exists, just as there are parts of the United States where farming is still a major industry. Iowa is certainly one of those places.

Although the farming population has decreased over the years*, these are still the people who we rely on for our food. The 1989 Bureau of Labor Statistics reports that the injury and illness rate in the agriculture, forestry, and fishing industry is estimated to be about 11 injuries and illnesses per 100 full-time workers, making it the third most hazardous industry in the country. With the number of farms and

farm workers declining, this high injury and illness rate is particularly alarming because it poses a threat to the backbone of food production in America.

The key to success for this "National Coalition for Local Action" we are building here is communication. There are many different representatives involved in this building process: farmers, physicians, chemical company representatives, farm machinery manufacturers, as well as representatives from government and academic institutions.

Naturally, there is going to be a great many philosophical differences between these groups. What we need to do is not dwell negatively on the things we disagree on, and instead focus positively on the things we *do* agree on, and build from there.

Only then, will this local action serve the national purpose. This is our "Field of Dreams." If we build it, they will come.□

*The number of farms in Iowa shrunk from 119,000 in 1980 to 105,000 in 1989 (according to the 1990 Statistical Abstract of the United States). Accordingly, farm employment has also dwindled in the last decade. In 1980, the farm employment population stood at approximately 3.7 million in the U.S. By 1988, that number decreased to 2.9 million.

REMARKS BY THE CHAIR OF THE CONFERENCE

By J. Donald Millar, M.D.
Director, National Institute for Occupational Safety and Health
Assistant Surgeon General

The National Institute for Occupational Safety and Health, part of the Centers for Disease Control, and I am very, very delighted to welcome you again to this Surgeon General's Conference for Agricultural Safety and Health. Is it not a great day in Iowa! It is beautiful out there. And just think how fortunate all the farmers of Iowa are that they get to spend the day outside today. It is wonderful!

I want to thank you again for coming. Is there anybody here from Amesworth or thereabouts? My wife and I drove over and we had a little automobile problem there or about there, and the good folk at the Amesworth Amoco Station were very helpful to us. So I just wanted to say thank you. Any of you from that area drop by and tell them that here is one very grateful Public Health Service officer who appreciates their help.

It is really good to be here. You know, this is the heartland, not only geographically, but in many ways philosophically, because here amidst the good people in the center of our country who still pursue farming as a primary occupation is the reservoir of many traditional American values—things that have made this country the great nation that it is; all the more reason why we should be here again, the second day of the conference, focusing on how to make their quality of life even better and more productive.

I would like you to, at this point, look in your program, if you have it, at page 27; there begins a full 18 pages of names of people who have made this conference possible. At your leisure look through; as you recognize these people during your time here just say thank you to them personally. There are lots of folks represented, from many walks of life; many from NIOSH, many from outside of NIOSH. It is to them that we owe the success of this conference.

There are two people there whose names you will not see. One is Dr. James Merchant, from the University of Iowa, who has demonstrated great national leadership in this field and who, along with Dr. Pratt, came to Atlanta one day and encouraged this meeting and many other things related to agricultural safety and health. We appreciate that leadership, and we are glad to be responsive to it. The other is one of our speakers this morning, Senator Harkin, who provided legislative encouragement for us to convene in this session.

So you will want to remember these people with gratitude for having initiated—having helped us all to initiate—this conference. The three speakers that I am pleased to introduce this morning all have roots in traditional agricultural states—people who have a good feel for the land. Whether or not they, themselves, may have ever operated behind a plow or on a tractor or whatever, each of them brings to this a sense of the appreciation of human worth that I think is so important in public health.□

HEALTHY PEOPLE 2000 AND AGRICULTURE

By Tom Harkin
U.S. Senator, State of Iowa

Dr. J. Donald Millar: I would like to introduce Senator Tom Harkin, a senator from the State of Iowa. Last fall, in Iowa City, he and I shared a platform at the annual meeting there for occupational medicine. Senator Harkin's father was a coal miner. His mother was an immigrant from Yugoslavia. He worked his way through school here in Iowa and then served as a pilot in the U.S. Navy from 1962 to 1967. In 1970, he was appointed as a staff assistant to the U.S. House Select Committee on U.S. Involvement in Southeast Asia. In 1972, he received his law degree from Catholic University in Washington, D.C., and was elected a U.S. Congressman from Iowa in 1974. Through the years, he has pursued what I think is a very fascinating practice, and that is a series of workdays on which he works a full day side-by-side with an Iowan. Last fall he worked his 100th such day, and it was on an Iowa farm. He was elected U.S. Senator in 1984 and again, as you know, was re-elected in 1990. On both the House and Senate Agriculture Committees, he has been an outspoken advocate for America's farm families. Since 1989 he has chaired the Senate Appropriations Subcommittee on Labor, Human Services, and Education on which, again, he has advocated improved agricultural safety and health. As his record shows, he has been able to effectively represent citizens from both major parties while becoming known as a man who has the courage of his convictions. I present to you Senator Harkin:

Thanks, Dr. Millar, for that generous introduction. But I am not sure I deserve all that praise.

It kind of reminds me of what Mark Twain once said. He said,

> *You'll go to heaven for your charity, unless you go somewhere else for your exaggeration.*

I would like to thank the Centers for Disease Control (CDC) for inviting me to speak here this morning. I am honored to share the stage with such world-class health care leaders, like Dr. Millar, who is fighting for the safety of working people all over America; and Dr. Novello, the Surgeon General, who tells it like it is and gets the job done.

I have been very impressed with your work and your leadership, Dr. Novello. And of course, Dr. Roper, who is leading the fight toward preventing and curing disease with great leadership at CDC. You and those that work for you are making it possible for us to meet the health care challenges facing this nation.

It is good to be home. I am proud to see Iowa host such an important conference. I see a lot of familiar faces out there today.

Well, I will not speak to you too long this morning. Here in Iowa, we do not waste time with a lot of words. We say what we mean, and get on with it.

I am here today because there is a crisis in rural America: a real crisis. It goes beyond droughts and low commodity prices, beyond floods and infestation. It strikes at the heart of the American farmer.

It is a crisis about how we protect the people who put food in our homes and what we can do to help them. Quite

frankly, our farmers are dying. Not just here in Iowa, but everywhere, in farms and fields all over this country.

We are here today to say American farm families should not have the second highest fatality rates in the nation. That 170,000 disabling farm injuries each year is a national tragedy. And that 300 children killed on farms each year is a national disgrace.

Last year in Iowa alone, 83 people died on farms, 16 of them children. Over 2,000 more were injured, including 439 children.

What we learn here this week, what we take back to our towns and hospitals and community centers, may save thousands of lives.

Use what you learn here this week to fight to make our farms safer places. And never stop searching for answers. The stakes are too high to settle for anything less.

The work certainly will not end here at this conference. But the discussion must begin here. It is a discussion that needs to start by asking the simple question, WHY?

- Why are so many farmers and their children losing their hands, their fingers, and their lives performing routine chores every day?
- Why are farmers and their kids sick so often, afflicted by acute illness?
- Why do cancer, chronic lung disease, arthritis, and hearing loss cripple so many farm families?
- Why cannot most farmers get a drink of water after a long, hard day without worrying about contamination?
- Why cannot many farmers afford basic health care and hospital expenses once they are sick?
- And why cannot we prevent it all from happening in the first place?

It is not our place to ask why it took so long for this discussion to start. That will not solve anything.

Dwelling on the failed policies of the past will not keep a young child out of a grain elevator today. It will not teach farmers planting beans or corn about the dangers of pesticides.

You know, it is funny that we call them farmers. Just "farmers." Because they are so much more than that. Sure, they farm.

They plant, and seed the harvest; they buy combines, sell crops, fix broken tractors, tend sick animals, and help bring life into the world. They are meteorologists, soil experts, businessmen and women, carpenters, mechanics, and laborers. And they perform a hundred separate tasks each day in a hundred different locations.

Farmers are working longer days, with more mechanization, bigger machines, and more complex machines. Bigger farms have collapsed planting seasons. Farmers rush to get everything done. Their windows for harvest are smaller. They work harder and faster. Is it any wonder that safety needs to be talked about?

There are those that look at this kind of farm work and say:

We cannot do anything. Our money can be better spent in other places. Studying farm injuries and farm safety is a waste of time.

Well, tell that to Richard Zeman. Richard is an Iowa farmer. He lives in Bode, Iowa with his family. He has always lived in Bode.

He was born and raised on the same farm that he is on now. One September afternoon 14 years ago, Richard was chopping silage with one of those big choppers that shoots the debris into a wagon behind it.

Richard's brother was following in the wagon. Richard was going along, and some weeds got caught in the chopper. He stepped out of his tractor, leaving it still running, circled around front, and stomped down on the weeds to pull them out.

But something happened that Richard had not planned. The chopper started to move again. It took the weeds, and caught Richard's pant leg with them. He struggled to get free, but the machine pulled him in. By the time his brother pulled him out seven minutes later, Richard's right leg was nearly severed from the knee down.

He survived. But here he was, 34 years old, five kids, and forced to wear a fake leg the rest of his life. Let me tell you, it is pretty hard to farm with a false leg.

But Richard still farms today. Sure, he moves slower. He cannot play the softball and volleyball he used to, but he gets by okay. That is, as long as the back spasms for which he has had two operations do not cause him too much pain, or his leg stem does not blister too much.

Richard says that if there had been some education then, or if he had heard a brief word or two about safety, he would have thought twice. He probably would not have done what he did. And he would have his leg. In fact, he would probably be playing third base for the local softball team.

How many Richard Zemans are there out there? I know you are probably thinking,

> *Sure Harkin, we know that happened. But that was a long time ago. Things like that do not happen anymore.*

Well, sure, and I say let me tell you another story. Let me tell you about my friend Marilyn Adams.

Marilyn is an Iowa farmer. She and her husband, Darrell, have been farming the same land in Earlham for many years. Marilyn's son, Keith, loved the farm.

He always helped his dad in the fields and around the barn. Of course, he also loved going to church, and riding his bike, and playing down at the pond. He had a pet frog. And he planned on being a minister, even at age 11.

Then one fall afternoon in 1986, Keith went out to help his dad. While his father was out working in the field, Keith worked on the grain wagon closer to the house.

After a while, Keith's dad came back with a load of grain. He called Keith's name but got no answer. He looked around and could not find his son anywhere. Eventually, something caught his eye. Mr. Adams went closer to the grain wagon to look around.

He found his 11-year-old boy suffocated at the bottom of the wagon. To this day, the Adamses do not know how Keith fell in. The grain just sucked him to the bottom, like a whirlpool.

Marilyn Adams was distraught, as you might imagine. A year went by, and while still hurt, she realized not enough was being done to promote safety to kids on farms. In October, 1987, she formed Farm Safety for "Just Kids," an education program to teach kids about farm safety.

A month ago, I went on a farm safety tour in Union, Iowa, at the Martin family farm, Reginal and Melody. They have three kids. There was something very special about the tour.

Mr. Martin did not show me around. His two boys did—Bryce and Paul, both less than 10 years old. They had both been through the "Just Kids" program and knew all the dangerous places to stay away from.

So when people tell me that we cannot do anything to make our farms safer places, I say they are wrong. Too many of my friends have been hurt for us to turn our backs.

We can do more, and we must do more, and as long as I am in Washington, that is what I am going to fight for. And you can count on it.

I am in kind of a unique position. Three years ago, I took over as chairman of the Senate subcommittee that funds health programs in this country. Until then, there had never been a focus on farm safety.

Well, we changed all that. In 1990, we got $11.5 million for the Centers for Disease Control to begin a farm health and safety initiative program. We increased that amount to $19.5 million in the 1991 bill, and we hope to increase it more for next year.

I am happy to say that $2.2 million has gone to the University of Iowa, Iowa State University, the Iowa State Department of Health, and to a network of 14 Iowa hospitals where they battle against farm disease and disability every day.

The farm safety program is made up of three parts. The first part focuses on identifying problems. The second part focuses on research. And the third part focuses on prevention and early intervention. We have seen early intervention work outside our farms and fields in other areas of society.

We know, for instance, that a woman given prenatal care while pregnant is 90 percent likely to have a healthy baby. If we help that poor kid with Head Start, WIC, and school lunch programs, the child is more likely to stay healthy, to stay in school, and to go on to become a productive citizen.

That is why Marilyn Adams' program is such a good idea. It reaches kids during that stage when it is so easy for them to learn. So they can recognize health hazards and can teach others about them.

Early intervention and prevention works in other places, too. Let me tell you about a few projects.

At Mercy Hospital here in Des Moines, for instance, we have started a cancer screening project for farmers, so cancer is detected early. Research has found that farmers have higher rates of leukemia, Hodgkin's disease, and lymphoma, as well as cancer of the lip, skin, stomach, prostate, and brain. We know that pesticide toxicity causes many more problems.

You will hear a lot about cancer and chronic disease over the next few days.

We do not understand all the problems and causes, but we have learned a lot. Through projects like those at Mercy Hospital, we can detect cancer early.

And through community outreach programs, we can educate farmers to the dangers when we discover them—community outreach programs like the Nurses in Rural Hospitals program, another project we started in order to get public health nurses into communities and rural hospitals and Parent-Teacher Association (PTA) meetings and everywhere that they will make a difference.

These nurses go out and look for injuries in farm communities. They are trained to recognize trends in medical histories, and to educate farm families to different risks.

The project just started. Currently, we have these nurses in many states throughout the country. And we will be increasing that amount.

We have also got to continue our efforts to provide farmers like Richard Zeman with safety tips, so they think twice before doing certain things. We know that taking shields off equipment can be dangerous, but many farmers do so because they interfere with cleaning. We know that it is not safe to go near moving parts on a machine, but many take the risk to save time, or they just miss the danger.

We know that kids should not go in a grain bin when the elevator is running. There are dangers on tractors and around other machines. Heck, when I was a kid, I used to ride on the fender of the tractor all the time. We just did not know it was dangerous.

Well, it is, and more people need to be reminded that saving time may mean risking lives. Above all, we need to stop people from thinking that farm injuries are just "part of the job." That is kind of like a traffic cop accepting a traffic accident as "part of the job," or a construction worker accepting a fall from a tall building as "part of the job."

There are things that can and must be done to prevent illness, disease, and disability, and not only on our farms and in our rural communities. Early intervention and prevention must reach into all aspects of American society in every city and town.

You know, we spend more than $700 billion on health care in this country—and we are not getting our money's worth. We do not need to spend more on health care. We just need to spend it better.

Experts say that over half of that amount is spent on preventable illnesses. Yet, of the more than $700 billion, only a small fraction is spent on prevention.

Well, my mother taught me the same thing your mother taught you: an ounce of prevention is worth a pound of cure. If that is true, then what is a pound of prevention worth? Everybody is talking about how to patch and fix and mend people, and that is important. But it is also important to talk about how to prevent injury, disease, and disability in the first place.

Well, my mother taught me the same thing your mother taught you: an ounce of prevention is worth a pound of cure.

Imagine if Americans took care of their cars like they take care of their bodies. What would you say if I bought a new car, drove it off the lot, never checked the oil, never checked the water, never tuned it up. Just drove.

And then, one day the engine seizes, I call the mechanic, he tells me that I need a new engine, so I say, okay, just put one in. You would think I was a little crazy.

Fact is, most of us spend more to maintain our cars than we do to maintain our bodies. Most people put more effort into watering their lawns to prevent browning than they do into taking care of their health to prevent costly and life-threatening illness later. Any farmer will tell you that you fix the fence before the horse escapes, not after.

Earlier this year, I introduced seven bills—called "Prevention First" to focus our attention on prevention and get rid of some of the anomalies in our system. I would like to talk about a few of these anomalies on both sides of life.

• MAMMOGRAMS

- 1 in 9 will develop breast cancer in their lifetime.
- Of those, 1 in 4 will die.
- 500 alone will die in Iowa this year.

► Anomaly:

- Spend $15,000 for mastectomies.
- Spend up to $50,000 for chemotherapy.
- Too often a woman dies.
- But we will not spend $75 for mammograms.

I HAD TWO SISTERS DIE.

• LOW BIRTHWEIGHT BABIES

- *Spend $2,000 to care for them; gladly pay it.*

► *Anomaly:*

- *But we will not spend less than $500 for 9 months for prenatal care.*

• LEAD POISONING

- Thought problem was gone

► Anomaly:

- 28-month old Wisconsin boy died—calcium depleted.
- Will not spend $7 billion to treat problems.

• CENTERS FOR DISEASE CONTROL

- Need to commit more to research.

► Anomaly:

- Spent more on military research in last 27 months.

> On our farms, in our factories, in our schoolyards and boardrooms, we need to make "Prevention First" our motto for health care in the 90's.

On our farms, in our factories, in our schoolyards and boardrooms, we need to make "Prevention First" our motto for

health care in the 90's. We will not solve every problem in the first year.

For some problems, we may never find a solution. But we can save a lot of lives and a lot of money.

I am counting on you first, to learn, then to educate. Take what you learn here back to farmers and hospitals in every community. Get the word out. Talk to people.

Because when you come down to it, we are the ones that will make a difference. And we will stop this crisis before there are more tragedies on our farms.

Above all, let us help protect the most valuable product that comes off our farms: our children. Let us teach them right so their children do not experience any of the problems we see today.

There is a lot of work to do. And we have got to start now. I want to see America where farmers do not have to accept injury and illness and disease as "part of the job."

As long as I am privileged to work for you in Washington, that is the kind of America I will be fighting for. And you can count on it!□

Surgeon General's Conference on Agricultural Safety and Health
FARMSAFE 2000 • A National Coalition for Local Action
Convened by the National Institute for Occupational Safety and Health
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BUILDING INFRASTRUCTURES FOR PREVENTION

By William L. Roper, M.D., M.P.H.
Director, Centers for Disease Control

Dr. J. Donald Millar: I am sure that nobody will appreciate that kind of attitude more than the next speaker, my boss, Dr. William L. Roper, who is the Director for the Centers for Disease Control, which is the nation's prevention agency. As Director of CDC since 1990, Dr. Roper has shown, again, true national leadership in emphasizing that this country must have prevention in order to deal with many aspects of the health care problem. Dr. Roper served in a variety of positions before coming to CDC in 1990. He received his medical degree from the University of Alabama School of Medicine, in 1974, and subsequently a Master of Public Health from that university in 1981. He completed a residency in pediatrics at the University of Colorado Medical Center in 1977. He has served as a local health officer, a county health officer in Alabama, and also later as assistant state health officer. During that period, he also served in several faculty positions at the University of Alabama. From 1982 to 1983, he was a White House Fellow in the White House Office of Policy Development, with responsibility for health policy. He then served as special assistant to the President for health policy—that is the President of the United States—until 1986, when he served as administrator of the Health Care Financing Administration, the agency that is responsible for Medicare and Medicaid. From 1986 to 1989, Dr. Roper served as Deputy Assistant to the President for all domestic policy and as Director of the White House Office of Policy Development. In the time that he has been Director of CDC, it has been very clear to all of us there that Dr. Roper is a man who is moved by human misery and who seeks always to act decisively to help. I am very happy to present Dr. William Roper:

Senator Harkin, I am speaking for myself and all of the Centers for Disease Control (CDC) and especially the National Institute for Occupational Safety and Health (NIOSH) in saying we are honored to be in your home state for this important conference. Iowa has already given a great deal towards focusing national attention on the health needs of farmers, farm workers, and their families, and paving a way to attend to these needs.

Back in the fall of 1988, Des Moines hosted what turned out to be the seminal conference on this topic, "Agricultural Occupational and Environmental Health: Policy Strategies for the Future." It resulted in the creation of the National Coalition for Agricultural Safety and Health, and a "Report to the Nation," which summarized the findings and recommendations of the conference. An Iowan, Jim Merchant of the coalition, with several of his colleagues, presented this report to my predecessor at CDC and now my boss, Jim Mason, in December of that year.

The presentation and report were persuasive. A CDC work group, headed by Don Millar, was quickly formed and plans for action followed. For the enactment of these plans we have to thank Iowa's Senator Harkin, who provided the political leadership in Washington to fund CDC's plans. So we gratefully recognize Iowa's profound role in bringing us to this point, and on into a better future, which we are here this week to help create.

As you know, CDC is the nation's prevention agency, so with the theme of my presentation today, "Building Infrastructures for Prevention," I would also like to recognize another Iowan important to public health, Dr. Richard Remington. He chaired an Institute of Medicine (IOM)

committee to study *The Future of Public Health*.

The findings and recommendations of his committee, published in a 1988 IOM report under the same title, represent a lucid appraisal of the state of our public health infrastructure and what is needed. I believe it will prove influential for all of us in this field and hopefully it will receive some attention outside the field as well.

However, the building of infrastructures has undoubtedly had as great a role as wars in history. The construction of first, railways, and then highways, and the shore-to-shore electrification and communications programs all have had revolutionary, long-term effects. The greatness of this country owes much to these achievements.

Likewise, the building of the current public health infrastructure has had profound impact. I define this infrastructure as the system of individuals and institutions that, when working effectively together, promote and protect the health of the people.

This infrastructure is made up of people, materials, strategies, and facilities. Among a host of achievements, our public health infrastructure has led to generally sanitary conditions in our cities and towns, progress in cleaning our air and water, the control of a host of communicable diseases, and an overall reduction in smoking.

What we are hearing these days, however, is that our progress in public health has to some extent lost its footing and missed a few steps. Having addressed the most public crises of yesteryear, we are finding ourselves challenged by an enormous range of scientifically and socially complicated problems for which public outrage and political will are far from automatic.

The public health concerns in agriculture make a case in point. You will be hearing many statistics of injury and disease over the course of this conference. The public health needs of those living and working on farms have been largely neglected. It is not surprising.

When the general public thinks of life on the farm, it conjures up a wholesome, perhaps hard but also idyllic picture of self-sufficiency and freedom from urban stressors and pollution.

The statistics, from CDC and others, have only recently been collected. The government policies and media attention are still largely focused on the medical care side of the equation; we are providing incentives for health care practitioners to work in rural areas, and reporting about the financial straits and closings of rural hospitals. There has been little prevention activity or interest.

Social factors concerning farm populations and their constituency groups have been equally important. The coalition's 1988 report cited the character of independence among people of farm populations, their sense of responsibility, and consequently a lack of organization or unions to represent farm families and workers. I understand there has been growing concern among farmers about toxins but I suspect injuries have always been, and are still, considered by many to be a condition of the way of life.

I would add to this the admirable trait of farmers to make the most of what they have, such as old equipment, making it last. Given also the financial rigors, it follows that farm constituency groups have pursued issues of economics and freedom

from restrictive regulations, rather than health.

In the past, when leaders in public health considered agriculture, they might have reasoned that the EPA is responsible for the safe use of agricultural chemicals and the Agricultural Extension Service has safety responsibility, and not pursued the subject further.

As the theme of this meeting, "National Coalition for Local Action," clearly portends, the foundation of our public health system, as it functions in agriculture and other sectors, must be the local public health agency.

This brings me back to "building infrastructures." Dr. Remington's IOM committee defined the mission of public health as "fulfilling society's interest in assuring conditions in which [all] people can be healthy." There are various infrastructures in agriculture that have a role in pursuing this mission.

Not only are USDA, EPA, and DOL needed, there is need for contributions from the public education system, rural hospitals, academic centers, agriculture-related businesses, volunteers, and community-based organizations such as Marilyn Adams' Farm Safety for "Just Kids." All of the individuals and institutions that have or could have involvement are needed, working effectively together towards our public health mission.

But it is time now that the public health agency become centrally involved with all of these partners. Surveillance, epidemiology, environmental and industrial hygiene, safety engineering, these are public health prevention disciplines. The responsibility for leadership in assuring healthy conditions of life for our citizens lies with us.

In this context, I am going to emphasize in the rest of my remarks a view of our public health system and how it will have to be strengthened, or some important aspects of how to build an infrastructure for prevention. The hope is that, working with you in the Agricultural Extension Service, the FFA, and in other organizations active and concerned in this area, we can build an infrastructure able to assure that agriculture's workers and families can be healthy. Not that public health agencies—federal, state, or local—are going to "take over," but that we will together build the system, the infrastructure, successfully to meet the problems of farm safety and health.

As the theme of this meeting, "National Coalition for Local Action," clearly portends, the foundation of our public health system, as it functions in agriculture and other sectors, must be the local public health agency. Most of the opportunity to enhance health occurs locally.

Yet, as CDC found in working with the National Association of County Health Officials (NACHO) to inventory local health units, even state agencies are generally once removed from communities. In our survey, we found that only 17 percent of county health departments were actually an arm of the state health department, and 41 percent reported themselves totally independent.

The CDC-NACHO study also brought us an important understanding of the resources available to local health departments outside of metropolitan areas. The re-

sources at the local health department are insufficient.

About half of the jurisdictions with a population of fewer than 50,000 have a local health officer who is a physician. A small majority of these jurisdictions have a full-time health officer.

They may have a handful of employees, most commonly including a clerical position, a registered nurse, and an engineer or sanitarian, in that order. The budgets of these local health departments range from tens of thousands to a few hundred thousand dollars. Included in these budgets are Medicaid reimbursements for personal health care.

Here we begin to see the picture of a local, rural health department where perhaps a single public health nurse is trying to meet a range of competing demands, including personal health needs such as immunizations, tuberculosis control, child health, and sexually transmitted disease control; environmental health demands such as safe water supply and sewage; and other functions such as food and milk control.

What resources can this lone rural nurse, with a clerical assistant, bring to bear on occupational safety and health on the farm, for example? According to the CDC-NACHO study, four out of five local health departments in jurisdictions with populations of fewer than 50,000 report, in effect, "none."

What is the answer then, if this foundation of the public health system, the local health department, may not be equipped to expand its activity to address the problems of the 90's—injury control, occupational and environmental issues, chronic diseases, smoking and nutrition, to name a few? The answer is not only enhancing resources quantitatively, but directing them to the rising demands, and where there is need or opportunity, capturing resources and assistance existing outside of the health department and even outside of government (raising coalitions).
In a word, what is needed at all levels of the public health system is "leadership." Leadership will build infrastructures for prevention. See *agricultural safety and health* as a reason for strengthening this nation's public health system.

We have various complementary means of leadership by which to accomplish our end. First among these is advocacy to ensure that we have the resources and participation we need.

Without articulate communication of our mission and the challenges that stand in its way, public health will not achieve the prominence required. Advocacy is an opportunity for public health in agriculture because of the insight and eloquence of many of the participants here today. However, public health advocacy must be unrelenting and, I emphasize, must occur at all levels.

In democracy, the most powerful advocacy swells from the community up. Local health departments should assume the community leadership role—setting forth the health agenda, building the necessary networks and alliances, mobilizing support, putting together public and private resources for common health purposes. It is the job of the rest of us in public health, whether we be state or Federal or outside of either, to encourage and empower these community agencies to take on their leadership.

If infrastructure is comprised of people, materials, strategies and facilities, the highest priority among these must be the people, the public health work force. After advocacy, human resources are important—public health is primarily people, not technology.

I would hope all of you here will join in supporting public health education, particularly of students of health professions. Taking the training of physicians for example, 99 percent of the curriculum in our medical schools today teaches curative medicine, not prevention.

In building infrastructures for prevention, we ought to think of our children as the most important infrastructure of all! We will always be striving to make our communities safer and more healthful. But raising generations with enough awareness to live healthy lives among the hazards around us and the hazards of choice is something we can and should achieve.

Building infrastructures requires advocacy, training, education . . . three other aspects in urgent need of attention are information, funding, and management and policy development. In bringing public health to agriculture, we are beginning in the right direction.

The information is needed at all levels, from the community to the nation. We are working with several states, including Iowa, to obtain this information and make it available. The use of our funds in this program, and the management and policy making involved, are directed to build infrastructures for prevention.

Looking forward, where we demonstrate success. This may sound very optimistic. The agricultural program CDC is leading is relatively small and much of the work is ahead of us. We have our first egg, and we are already counting flocks of chickens. However, we are expecting this program to grow.

We have this coalition we are building. We have, and this is what I have been trying to convey about building infrastructures for prevention, a great deal of opportunity before us. In whatever capacity we find ourselves, we can exert leadership to build a public health system of public and private means that serves our agricultural work force and their families.

In their report, the Committee for the Study of the Future of Public Health referenced de Toqueville as identifying an American political tendency to "organize actions around specific issues." The point being made was that issue-specific political groundswells can build or fragment our public health system. A general consensus on the mission and organization of our public health system is needed behind such groundswells if we are going to build a system to serve, for the long-term, a whole country of healthy people.

We have ourselves here just such an issue as De Toqueville was referring to in the 19th century. We have recognized that there is "a problem out on the farm," and we have begun to assemble our forces. Let us use the opportunity we have created to build a public health system that will work.□

A CHARGE TO THE CONFERENCE

By Antonia C. Novello, M.D., M.P.H.
Surgeon General of the U.S. Public Health Service

Dr. J. Donald Millar: Well, what you did not read in USA Today yesterday, you are about to see through the miracle of video communications:

A Video Introduction: *Good Science and Good Sense* —That is the motto of Dr. Antonia Novello, who in March 1990 became the first woman and the first Hispanic to become Surgeon General of the United States Public Health Service. The road to success for Dr. Novello began in her hometown of Fajardo, Puerto Rico, the center of a region long known for its production of sugar. After receiving her B.S. and M.D. from the University of Puerto Rico, Dr. Novello moved on to the University of Michigan in Ann Arbor, where she served her pediatric internship and residency. She also completed her subspecialty training in pediatric nephrology at Michigan, and later at Georgetown University, and then went on to earn a Masters in Public Health from the Johns Hopkins University. After several years working in the private practice of pediatrics and nephrology, Dr. Novello entered the Public Health Service with the National Institutes of Health, where she eventually became Deputy Director of Child Health and Human Development. Dr. Novello has served on several major public health committees and organizations over the years and has received a long list of prestigious awards in the process. Since her historic appointment as Surgeon General, Dr. Novello has made issues such as childhood immunization, pediatric AIDS, and childhood injuries among the top priorities on her agenda as the nation's number one public health spokesperson. Dr. Antonia Novello . . . the 14th Surgeon General of the United States:

— Edited and narrated by Jeffrey H. Lancashire

Greetings. I am glad to be here with you this morning as I welcome you to the Surgeon General's Conference on Agricultural Safety and Health.

As the Surgeon General of this country, I represent all of the citizens of this Nation. But as a pediatrician, I am especially concerned about the health of our Nation's children, for they are our most important resource and they represent our future.

The theme of this conference—*FarmSafe 2000, A National Coalition for Local Action* —is a serious topic. One that I know we have all placed on the top of our agendas.

As Surgeon General, I never thought that much would be focused on the subject of injuries—but because they are one of the leading causes of death in this country for all age groups, I will continue to speak out about them whenever and whenever possible.

It seems somehow fitting, then, that I have just returned from addressing the Third National Injury Control Conference in Denver, at which a national agenda for injury control was drafted, and from a symposium on trauma in Texas, where four states came together to work on the prevention of head, neck, and spine injuries.

I am concerned about the health of our Nation's children. The more I talk about their health, the more I must tell you that it is very important for parents to recognize the dangers that their children face with regard to injuries.

We know that politically, children have no voice and therefore no power, yet they comprise one-quarter of the U.S. popula-

tion today, or about 64 million. As citizens of the Nation, we must assess, help, plan, and then act—it is our duty to build a stronger foundation for our young people and for their parents. We must speak for those who cannot speak for themselves—for those who are not with us today—it is their right to live full and rewarding lives, and it is our responsibility to do all that we can to make those lives the best they can be. As I said:

- Injuries are the leading cause of death in children today, with non-fatal injuries out numbering fatal injuries. Annually, injuries claim the lives of over 22,000 children between the ages of 0-19.

- Each year, an estimated 600,000 children are hospitalized and almost 16 million more are seen in emergency rooms for their injuries.

- The toll of injuries on the young is devastating; they suffer more deaths from injuries from the first year of life through the age of 19, than from all diseases combined.

- Injuries are also the leading cause of disability, with more than 30,000 children suffering permanent disabilities each year.

While the effects of such disabilities on children's development, daily living, and future productivity are great, the financial, emotional, and social effects on the family are enormous. Sadly enough, the number of reported injuries suffered by our children has not really changed much over the past twenty years.

If we, at least acknowledge that injuries occur and can be prevented—then maybe injuries as a public health problem in this United States whether in farm country or in some Eastern State neighborhoods will receive the attention, focus, and resources commensurate with their magnitude.

The picture is worse for parents who are farmers where additional hazards are faced by their children. For example:

- Over 24,000 children are estimated to be injured each year on farms; 5000 of them suffering serious injuries.

- One out of five of all deaths occurring on farms are for children under the age of 16.

- A Cornell University study shows that children on farms under 14 years old were more than three time as likely to be injured, when compared to others working on the farm.

- Similarly, a Mayo Clinic study found that there were two ages where farm children were most vulnerable to injury; age four, because kids could go anywhere on their own, and were not scared of anything—and the other dangerous age was 14, when children—especially boys—began to take on major farming chores.

- Sixty-five percent of farm boys drive tractors before the age of 12. By law, they are permitted to drive a tractor down the highway. If the tractor flips over or is struck by another car, and the child is injured or killed—this is not reported as a workplace accident.

- The long-term emotional toll and injuries are enormous: A 1984 Wisconsin study placed the cost for a serious farm injury at $140,000 and the total hospital

and rehabilitation costs for farm injuries were estimated to be about $2.5 billion dollars.

All of us here today know that we have many problems that we must deal with. The realities we face vary form lives lost to long-term disabilities. As we heard yesterday:

- Agriculture is among the Nation's most hazardous occupations.
- We know that death rates, hover around 50 deaths per 100,000 workers, while the annual death rate for all other industries combined is only 11 deaths per 100,000.
- We know that in 1986, 1600 agricultural deaths occurred, including approximately 300 children that were killed while engaged in farm-related activities.
- We know that about 170,000 disabling farm injuries occur each year, and about half of all that survive them are permanently disabled.
- We also know that farms and other agricultural operations are predominantly small businesses.
- We also know that agricultural work is typically conducted in remote areas away from emergency medical or specialized diagnostic services.
- We know that agricultural equipment is typically over 15 years old, still in wide use and frequently does not include safety technology that would protect the operator.

You may say, why are injuries such a problem in this country? Well, I believe several reasons apply here.

▸ First, the term "accidents" still connotes randomness, unpredictability, and preventability. These connotations prevent institutions, the public, and educators from approaching injury prevention in a scientific manner.

Injuries need to be visualized as a problem of public health—allowing for us to deal with them the same way we approach disease and subsequent disease prevention wherever they may occur.

▸ Second, I believe there is a lack of interest and knowledge of the field by the general public, as well as by some law makers. People in the rest of the United States might not realize that injuries that happen in farm country have an effect on the country as a whole.

▸ And third, but not least, there is a general lack of morbidity and mortality data, which hinders prevention efforts that sometimes can be most effective.

Obviously, we need to come together to work this problem through. It is not just a problem that happens in farm country, it is a problem that happens everywhere. We as united citizens must bring it to the forefront. For example:

- The U.S. Department of Agriculture reports that there are 13.1 million persons in the United States that derive some of their income from farming, and an additional 6 million dependents.

These workers and their families experience a disproportionate share of inju-